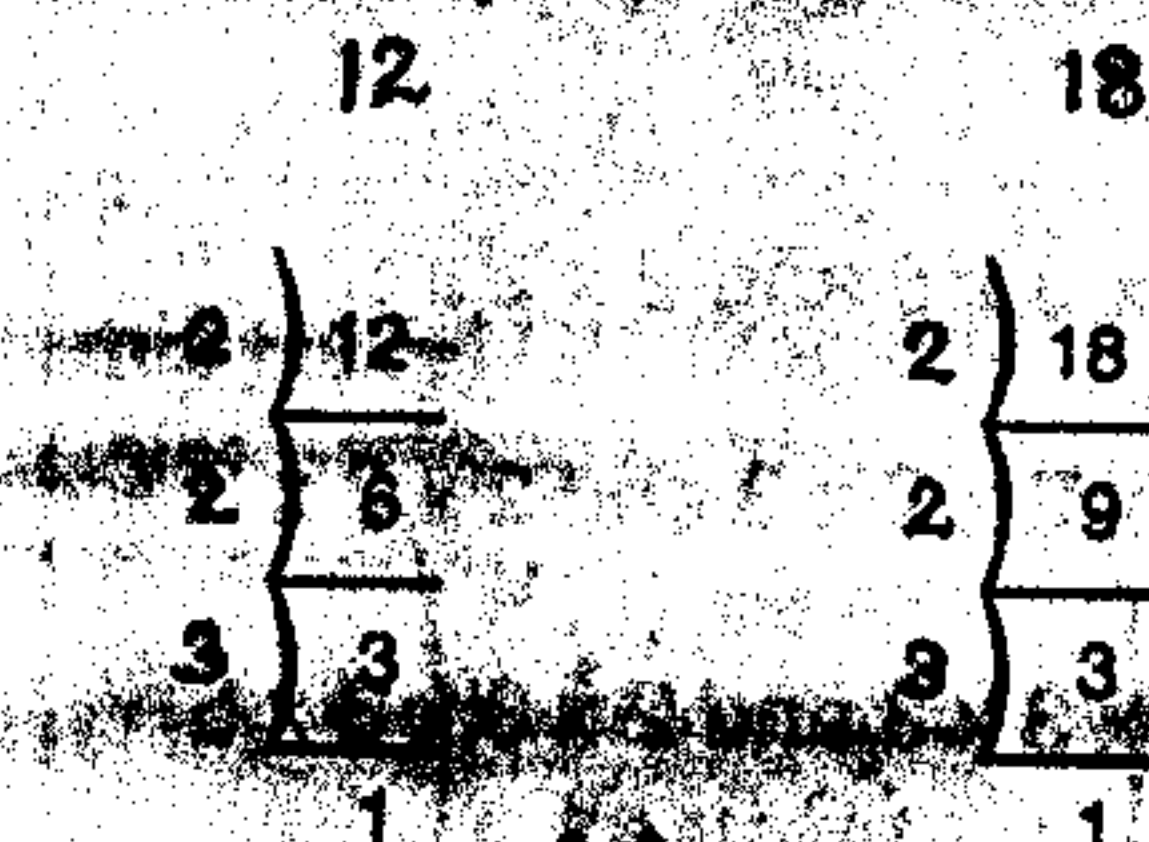
Class	**5**
Target	**Math**
Term	**2**

Topic	Pages
1.L C M	p # 28,29 (from Get Ahead Mathematics book 5)
L C M	Ahead Mathematics book 5)
L C M	ɛt)
L C M	Ahead Mathematics book 5)
L C M	ɛt)
2. H C F	# 34, 35,36,37 (from Get Ahead Mathematics book 5)
	p # 0017 (from target)
H C F of three numbers	p # 38,39,40 (from Get Ahead Mathematics book 5)
	P # 0018 (from target)
Review	p # 0019
3. Algebra_ Common Fractions	p # 41 (from Get Ahead Mathematics book 5)
	p # 0020 (from target)
Changing fraction to their simplest form	p # 42,43,44 (from Get Ahead Mathematics book 5)
	p # 0020 exercise A,F (from target)
Addition and Subtraction of Fractions	p # 0020 exercise H,I(from target)
Multiplying common Fractions by whole numbers	p # 44,45,46,47 (from Get Ahead Mathematics book 5)
	p # 0021 (from target)
Word Problems	p # 47,48 (from Get Ahead Mathematics book 5)
Division with Fractions	p # 0022,0023 (from target)
Decimal Fractions	p # 49 (from Get Ahead Mathematics book 5)
	p # 0024 exercise 1(from target)
Decimal fractions	p # 50 exercise1 (from Get Ahead Mathematics book 5)
	P # 0024 exercise 2 (from target)
Changing Common fraction with different Denominator into decimal fractions	p # 50,51,52
	p # 0024 exercise 3 (from target)
Changing common fractions into decimal Fractions by division	p # 52,53,54
Changing decimal fractions to their simplest Common fraction	p # 55
	P # 0024 exercise 4 (from target)

LCM

It's easy to find their lowest common multiple (LCM).

Let's take 12 and 18 and find their prime factors:

12		18	
2	12	2	18
2	6	2	9
3	3	3	3
	1		1

The LCM of the two numbers must include all the prime factors of each of them. We find the LCM by multiplying together all the prime factors. But we include the common factors only once:

Prime factors of 12 : 2 x 2 x 3

Prime factors of 18 : 2 x 3 x 3

LCM of 12 and 18 = 2 x 2 x 3 x 3

= 4 x 9

LCM = 36

A Using the division method, find the LCM of these pairs:

1. 42 and 126
2. 33 and 165
3. 28 and 84
4. 196 and 56
5. 45 and 75

B **Here, pairs of numbers are shown broken down into their prime factors.** Quickly find the LCM of each pair:

* 2 x 2 x 3 and 2 x 2 x 5

CF = 2 and 2

LCM = 2 x 2 x 3 x 5

= 60

1. 2 x 2 x 3 and 2 x 7
2. 2 x 2 x 2 and 2 x 2 x 3
3. 2 x 2 x 5 and 5 x 5
4. 2 x 3 x 3 and 2 x 2 x 3
5. 2 x 5 x 5 and 2 x 5
6. 2 x 3 x 5 and 2 x 2 x 2 x 5
7. 2 x 2 x 3 x 5 and 2 x 2 x 3
8. 2 x 3 x 3 and 2 x 5 x 3

C Look at the pairs of numbers in exercise B above. As quickly as you can, change the numbers back into whole numbers:

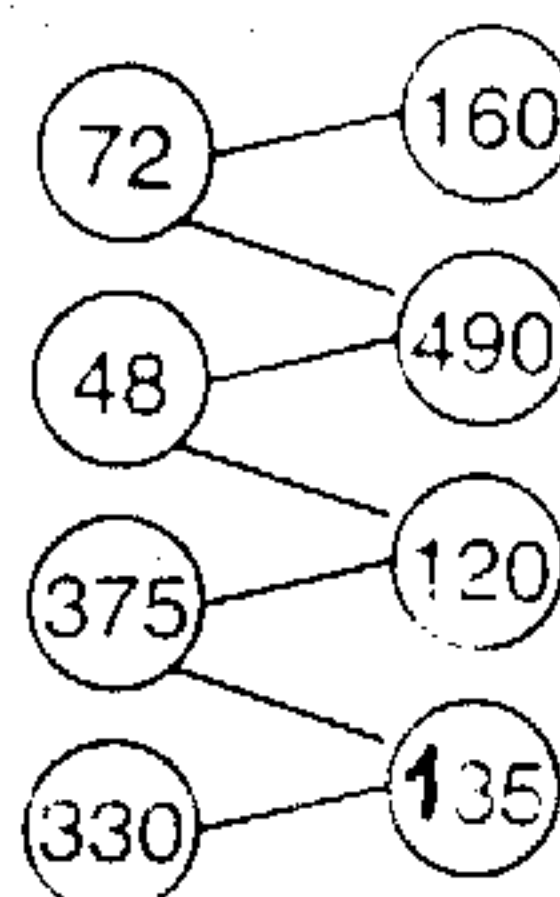
* 2 x 2 x 3 and 2 x 2 x 5

12 and 20

D Match each pair of numbers shown below to the correct LCM (use your rough notebook to make your calculations):

1. 16 and 12
2. 27 and 45
3. 36 and 24
4. 55 and 66
5. 40 and 32
6. 15 and 125
7. 70 and 98
8. 30 and 40

LCMs

72, 160, 48, 490, 375, 120, 330, 135

LCM of three numbers

Suppose we want to find the LCM of three numbers.

We follow exactly the same steps.

Let's take the set 12, 18 and 27.

First, we break each number down into its prime factors:

12		18		27	
2	12	2	18	3	27
2	6	3	9	3	9
3	3	3	3	3	3
	1		1		1

We then list the prime factors and loop together the common factors:

12 = 2 x 2 x 3
18 = 2 x 3 x 3
27 = 3 x 3 x 3

We next write down all the factors of all the numbers, writing common factors only once.

To find the LCM, we multiply these together:
2 x 2 x 3 x 3 x 3
= 4 x 9 x 3
= 108

The LCM of 12, 18 and 27 = 108

A Find the LCM of these numbers:

1. 6, 9 and 15
2. 8, 12 and 20
3. 10, 15 and 18
4. 8, 15 and 20
5. 10, 12 and 20

B Write the prime factors and common prime factors of these pairs of numbers. Then work out the LCM:

★ 2 x 2 x 3 x 5 and 2 x 3 x 3

LCM = 2 x 2 x 3 x 3 x 5
= 180

1. 2 x 3 x 5 and 2 x 2 x 5
2. 2 x 2 x 2 x 3 and 2 x 2 x 3
3. 2 x 3 x 3 and 2 x 3 x 3 x 5
4. 2 x 2 x 7 and 2 x 3 x 7

C Repeat exercise B, this time with three numbers. Think carefully!

★ 2 x 2 x 2; 2 x 3; 2 x 3 x 3

LCM = 2 x 2 x 2
x 3 x 3
= 72

1. 2 x 2; 2 x 3; 2 x 5
2. 2 x 2 x 2; 2 x 5; 2 x 3 x 5
3. 3 x 3; 3 x 5; 3 x 7
4. 2 x 2 x 5; 2 x 2; 2 x 5 x 7

The [illegible]

By using the division method, we can quickly find the HCF of two or more large numbers.

Let's take 56 and 140 and break them down into their prime factors:

	56		140
2	56	2	140
2	28	2	70
2	14	5	35
7	7	7	7
	1		1

The HCF is the product of the factors common to both.

What are the common factors here?

56 = (2) x (2) x 2 x (7)

140 = (2) x (2) x 5 x (7)

The common factors are 2, 2 and 7

So the HCF = 2 x 2 x 7

= 28

The HCF of 56 and 140 = 28

A Break these pairs of numbers into their prime factors, then find their HCF:

1. 64 and 148
2. 26 and 96
3. 58 and 112
4. 108 and 144
5. 42 and 116
6. 35 and 105
7. 63 and 108
8. 27 and 130
9. 28 and 140
10. 72 and 52

B Here, numbers have already been broken down into their prime factors. Quickly find the HCF of each pair:

* 2 x 3 x 7 x 5 and 2 x 5 x 2

CF = 2 and 5

∴ HCF = 2 x 5 = 10

1. 2 x 3 x 5 and 2 x 2 x 5
2. 2 x 2 x 3 x 7 and 2 x 3 x 3
3. 2 x 2 x 2 x 5 and 2 x 2 x 3 x 5
4. 3 x 3 x 5 and 3 x 3 x 7
5. 2 x 2 x 2 x 3 and 2 x 2 x 2 x 5
6. 3 x 5 x 7 and 3 x 5 x 11
7. 2 x 3 x 7 x 11 and 2 x 2 x 2 x 11
8. 2 x 3 x 3 x 5 and 2 x 3 x 5 x 7
9. 2 x 3 x 5 x 5 and 3 x 5 x 5 x 7
10. 3 x 7 x 7 and 2 x 3 x 7

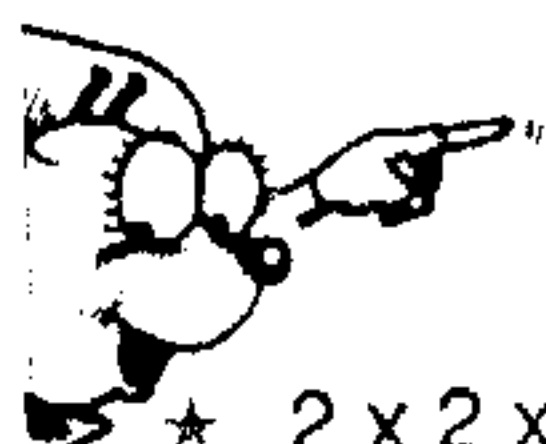
We already know that the [illegible] of two or more numbers is the largest number which is a factor of all of them.

For example, the HCF of 20 and 35 is 5.
The HCF of 16, 24, and 32 is 8.

C Write the HCF of:

★ 12, 16 and 20 HCF = 4

18, 27, 36 | 49, 70, 35
12, 30 | 27, 54, 18
25, 15, 30 | 24, 60, 48

C Now find the HCF of these sets of **three** numbers:

Remember: the HCF is the **product** of the common factors

★ 2 x 2 x 3 and 2 x 3 x 3 and 2 x 3 x 3

CF = 2 x 2 x 3 = 2 and 3
2 x 3 x 3
2 x 3 x 5

HCF = 2 x 3 = 6

1. 2 x 3 x 3 and 2 x 2 x 2 and 2 x 2 x 3
2. 2 x 2 x 3 x 5 and 2 x 2 x 5 and 2 x 3 x 3 x 5
3. 2 x 2 x 3 and 2 x 5 and 2 x 3 x 5 x 5

A Tick only those numbers which are divisible by 4:

1. 624
2. 1,859
3. 3,060
4. 57,312
5. 308,005
6. 864,442

B Copy these numbers, then circle those which are divisible by 6:

1. 6,369
2. 1,572
3. 43,034
4. 18,060
5. 66,603

C Write any 4-digit number which is divisible by 3 but **not** by 6.

D Write the numbers whose prime factors are shown, using brackets to help you:

1. 2 x 2 x 2 x 3 x 3 x 5
2. 2 x 3 x 3 x 7
3. 2 x 2 x 3 x 3 x 5 x 7
4. 2 x 2 x 3 x 5 x 11

E Break these numbers down into their prime factors, using the division method:

1. 148
2. 210
3. 365
4. 780
5. 418
6. 672

F Find the HCF of these numbers, using the division method:

1. 36 and 108
2. 56 and 120
3. 24, 112 and 72
4. 38, 95 and 114

G Using the **long division** method, find the HCF of these pairs:

1. 308, 182
2. 368, 506
3. 1,612, 1,457
4. 1,204, 731

H Find the LCM of these pairs of numbers, remembering to include common factors **only once**:

1. 2 x 2 x 3 and 2 x 2 x 2 x 3
2. 3 x 3 x 5 and 3 x 5 x 7
3. 2 x 2 x 5 x 5 and 2 x 2 x 3 x 5
4. 5 x 5 x 7 and 2 x 5 x 7

I Find the LCM:

1. 9, 18 and 21
2. 12, 16 and 20
3. 10, 14 and 30
4. 24, 30 and 40

J Copy the sentences and fill in the blanks:

1. If the product of two numbers is 756 and their HCF is 6, their LCM will be ________.
2. If the LCM of a pair of numbers is 105, their HCF is 3, and one of the number is 15, the other number is ________.

Fractions: review

A Reduce these fractions to their lowest terms:

1. $\frac{[illegible]}{48}$ 3. $\frac{72}{81}$
2. $\frac{25}{55}$ 4. $\frac{105}{145}$

B Complete the equivalent fractions:

1. $\frac{4}{7} = \frac{*}{35}$
2. $\frac{7}{8} = \frac{49}{*}$
3. $\frac{25}{40} = \frac{*}{8}$

C Write these as mixed numbers:

★ $\frac{19}{4}$ $4\frac{3}{4}$

1. $\frac{25}{3}$ 4. $\frac{52}{9}$
2. $\frac{32}{5}$ 5. $\frac{48}{11}$
3. $\frac{18}{7}$ 6. $\frac{61}{8}$

D Write these as improper fractions:

★ $6\frac{2}{9}$ $\frac{56}{9}$

1. $4\frac{5}{8}$ 4. $5\frac{11}{12}$
2. $7\frac{2}{7}$ 5. $6\frac{4}{11}$
3. $8\frac{3}{11}$ 6. $3\frac{7}{15}$

E Write the fraction that is:

1. Equivalent to $\frac{7}{8}$ and has a denominator of 96.
2. Equivalent to $\frac{8}{9}$ and has a numerator of 112.
3. Equivalent to $\frac{72}{96}$ but is written in its lowest terms.

F Reduce these to their lowest term then change into mixed numbers:

★ $\frac{55}{4[illegible]}$

1. $\frac{38}{16}$ 4. $\frac{44}{24}$
2. $\frac{56}{21}$ 5. $\frac{75}{30}$
3. $\frac{32}{20}$ 6. $\frac{81}{36}$

G Rewrite these fractions so that they have a common denominator:

★ $\frac{3}{5}$ and $\frac{3}{8}$ CD = 40

$\frac{24}{40}$ and $\frac{15}{40}$

1. $\frac{2}{7}$ and $\frac{3}{14}$
2. $\frac{5}{8}$ and $\frac{3}{20}$
3. $\frac{5}{9}$ and $\frac{16}{27}$

H Complete these, making sure each answer is in its lowest terms:

1. $\frac{2}{5} + \frac{1}{4}$ 3. $3\frac{1}{5} + 1\frac{1}{3}$
2. $\frac{1}{3} + \frac{3}{8}$ 4. $4\frac{3}{10} + 2\frac{3}{4}$

I Now subtract carefully, making sure each answer is in its lowest terms:

1. $5\frac{7}{8} - 2\frac{1}{8}$ 3. $3\frac{1}{4} - 1\frac{2}{3}$
2. $\frac{3}{4} - \frac{1}{6}$ 4. $7\frac{2}{3} - 3\frac{3}{10}$

Multiplication of fractions: first ideas

A Complete these sums using repeated addition; the diagrams will help you:

$\frac{1}{3} \times 2$

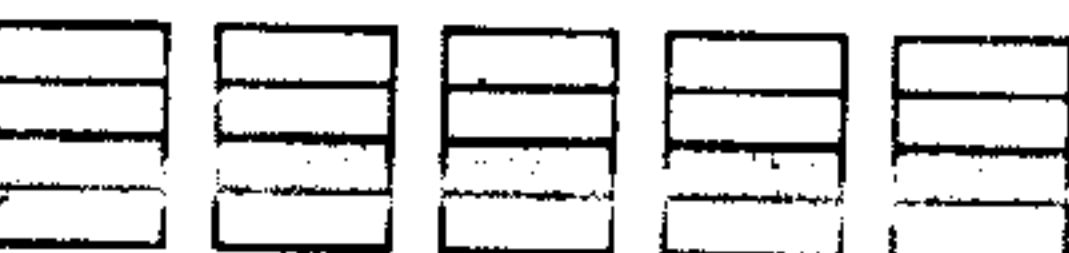
$\frac{1}{3} + \frac{1}{3} =$

$\frac{1}{2} \times 5$

2. $\frac{1}{4} \times 4$

$\frac{1}{5} \times 3$

$3 \times \frac{1}{6}$

5. $5 \times \frac{1}{4}$

$4 \times \frac{1}{3}$

Let's now multiply $\frac{2}{5}$ by 3:

$\frac{2}{5} + \frac{2}{5} + \frac{2}{5} = \frac{6}{5} = 1\frac{1}{5}$

Did you spot the short cut? Instead of adding, we can solve our sum very quickly by multiplying our numerator by our whole number;

$\frac{2}{5} \times 3 = \frac{6}{5} = 1\frac{1}{5}$

We can write our sum like this:

$\frac{2 \times 3}{5} = \frac{6}{5} = 1\frac{1}{5}$

B Now complete these, using multiplication instead of repeated addition:

$\frac{3}{7} \times 2$

1. $\frac{2}{3} \times 4$
2. $\frac{3}{4} \times 3$
3. $\frac{5}{8} \times 3$
4. $5 \times \frac{1}{6}$
5. $7 \times \frac{2}{5}$
6. $\frac{2}{7} \times 4$

C Complete these, making sure your answer is in its lowest terms:

$\frac{5}{6} \times 3 =$

1. $\frac{2}{3} \times 6$
2. $\frac{3}{4} \times 8$
3. $\frac{5}{6} \times 6$
4. $5 \times \frac{2}{3}$
5. $\frac{3}{10} \times 2$
6. $4 \times \frac{7}{8}$
7. $5 \times \frac{1}{10}$
8. $\frac{3}{8} \times 4$

Division with fractions: first ideas

Sid is looking back through his old school textbooks. He has found his old, battered copy of COUNTDOWN 1.

Sid is reviewing the basic rules of division.

When we solve a sum such as $21 \div 3$, we ask ourselves, 'how many sets of three can be made from a set of 21,' or, more simply, 'how many threes make 21'?

This sum is far too easy for Sid and for you!

But if we remember this basic rule of division we shall find division with fractions simple and good fun to do.

A Copy and complete this table, remembering your rules of division:

division sum	words we say	quotient
$81 \div 9$	make 81?	
$112 \div 8$		
$250 \div 50$		
$324 \div 4$		
$391 \div 17$		
$270 \div 15$		

Using words to help us, we can easily solve this division sum:

$$1 \div \frac{1}{4}$$

We ask ourselves: how many [illegible]

The answer is easy: 4 quarters

$$1 \div \frac{1}{4} = 4 \text{ (quarters)}$$

Now let's try this sum: 0020

$$2 \div \frac{1}{3}$$

We ask ourselves: [illegible] thirds [illegible]

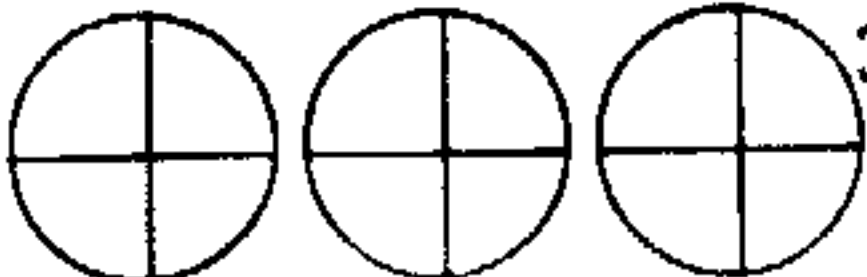
Again, the answer is easy: 6 thirds

$$2 \div \frac{1}{3} = 6 \text{ (thirds)}$$

B Now solve these, using words to help you:

$1 \div \frac{1}{3}$ $\quad$ $1 \div \frac{1}{8}$ $\quad$ $3 \div \frac{1}{3}$

[illegible] $\frac{[illegible]}{5}$ $\quad$ [illegible] $\frac{1}{4}$ $\quad$ [illegible] $\frac{[illegible]}{5}$

[illegible] $\frac{1}{7}$ $\quad$ 2 [illegible] $\frac{1}{6}$ $\quad$ [illegible] $\frac{[illegible]}{4}$

Division with fractions

A Copy and complete this table, thinking very carefully:

	division sum	words we say	quotient
★	$2 \div \frac{1}{9}$	How many ninths make 2 wholes?	18
1.	$3 \div \frac{1}{7}$		
2.	$5 \div \frac{1}{8}$		
3.	$8 \div \frac{1}{3}$		
4.	$7 \div \frac{1}{6}$		
5.	$9 \div \frac{1}{10}$		

Look carefully at your completed table A. Have you noticed something interesting?

To find the quotient of each division sum, you have been using multiplication!

For example to solve the sum

$$18 \div \frac{1}{14}$$

We ask ourselves: how many fourteenths in 18?

We know that there are 14 fourteenths in one whole.

So in 18 there [illegible] = 252.

$$18 \div \frac{1}{14} = 252 \text{ (fourteenths)}$$

When we divide with fractions, we use multiplication to help us.

B Write division sums to match these diagrams:

★
$3 \div \frac{1}{4} = 12$

1.

2.

3.

4.

5.

6.

C Now complete these:

1. $6 \div \frac{1}{9}$
2. $7 \div \frac{1}{12}$
3. $11 \div \frac{1}{10}$
4. $14 \div \frac{1}{13}$
5. $23 \div \frac{1}{4}$
7. $28 \div \frac{1}{7}$
8. $13 \div \frac{1}{14}$
9. $17 \div \frac{1}{19}$

Decimals and fractions

1. Change into common fractions:

- ★ 12.95 $12\frac{95}{100}$
- 10.01
- 24.22
- 18.05
- 2.9

2. Write as decimals:

- $1\frac{3}{1000}$ 1.003
- $2\frac{5}{1000}$
- $8\frac{9}{100}$
- $7\frac{35}{1000}$
- $4\frac{21}{1000}$
- $6\frac{117}{1000}$
- $18\frac{3}{10}$

3. Write these common fractions as **decimals:**

- ★ $1\frac{8}{10}$ 1.8
- 1. $2\frac{3}{10}$
- 2. $16\frac{1}{10}$
- 3. $8\frac{9}{10}$
- 4. $12\frac{5}{10}$

4. Write these as common fractions in their **lowest terms**:

- 16.75 $= 16\frac{75}{100} = 16\frac{3}{4}$
- 50.5
- 25.25
- 18.2
- 100.45